

**STONE BUSINESS – NOVEMBER 2006****ANCHORING A COLLEGE MAINSTAY**

Baltimore – When officials at Morgan State University (MSU) set out to build a new library, they wanted a structure that relates to the school’s past while still looking forward. They got it with natural stone.

Not just any stone, either, but one similar to that used for the exteriors of some of the school’s most-historic buildings. The feel of new came with hanging the façade on a curtainwall system just coming into use in the United State.

The job also provided some challenges, including an 11th-hour search for a new stone supplier. However, all involved love the use of the stone, making the building a success

**LOOKING BACK, LOOKING AHEAD**

The blending of the old and new in the library reflects some of Morgan State’s own personality. Founded in 1867 by the local Methodist Episcopal diocese to train young men for the ministry, it evolved into an institution for preparing both sexes to be teachers.

Later name Morgan College in honor of a major benefactor, in 1915, it moved its current location in a residential area of northeast Baltimore. In 1939, the state of Maryland purchased the school to provide more educational opportunities for blacks.

Today, its 143-acre campus is officially designated as Maryland’s urban university.

After years of being under-funded, MSU received state dollars for major capital improvements initiative about ten years ago, says Mohammad Saleem, the school’s manager of design services. Among the items included in the campus master plan: replacement of the existing library.

“It was built in 1974 and never renovated,” Saleem says. “It was deficient in a lot of areas, from space and technology to HVAC (heating, ventilation and air-conditioning) to lighting. It also had moisture issues.”

As the site for the new library, officials selected the spot of the school’s old fine-arts buildings, which was replaced about three years ago. The location also put it close to a new student union, which recently opened.

To get a handle on what a new library would need – even before the first request for proposals (RFP) was okayed – Saleem says the school started a program that began with a user-group committee analyzing the existing situation.

“These were people who were working in the existing library who understood the issues involving the students, employees and other users – including the community,” he explains. “That was made part of the RFP.”



Being a job for a state agency, Saleem adds that once firms had responded to the RFP, they were then reviewed by a selection committee made up of officials from MSU and Maryland's department of general services.

"We made a short list that involved two phases," he says. "The first was a review of technical qualifications. Those who passed that phase were interviewed, and the highest-scoring team was selected."

That team, a partnering of the Watertown, Mass.-based Sasaki Associates Inc., as the design architect, and the Baltimore-based Design Collective, which served as architect or record, spent almost two years helping to plan the project before construction work actually started.

#### MODERN INTERPRETATION

MSU's Saleem says much of that planning time was spent working with the user-group committee and the design team to make sure that the design team understood the user groups' needs and intentions.

While the outline of the structure – which ultimately became the 221,500 GSF on four floors – required give-and-take. Saleem and the architects say there were firm ideas on exterior appearance of the building from the beginning.

Many of the older buildings on the campus were built of a stone quarried just north of Baltimore called Morgan stone, which is similar to Butler stone.

"The Morgan stone is very reflective," says Design Collective's Brian Grieb. "The palette is earthy, and has a lot of variation from stone to stone, with tans, different shades of gray, some yellow and ochre.

"Because this building is helping to redefine the campus, they wanted to create an image that's contemporary while maintaining contextually to the overall campus. We looked for a modern interpretation of the existing stone on campus."

Getting the right stone for the job became a much-more-involved process than expected, however. The school's Saleem says he first spotted the initial choice while on a visit to Sasaki's offices.

"I'd seen a stone used in a smaller library in Boston," he explains. "I went and looked at the stone and I thought it looked pretty good, so we got some samples and reviewed the specifications and had some mockup panels done on our site, and that's how we came to a final agreement on it."

The stone, a Mesa quartzite quarried in China, was available through a New England supplier. As planning for the project moved ahead, that supplier, in turn, suggested to the architects that they utilize a new method of installing the quartzite.

The Advanced Curtainwall Technology (ACT) from Arthur Fischer GmbH & Co. KG in Weinhalde, Germany, has been utilized in Europe for several years. It's only recently appeared in the United States, where it's represented by Probe Stone Façade Systems of Wayne, N.J.

Probe's president, Louisa Tett, explains that hanging the stone using Fischer's back-anchoring system allows architect to specify thinner stone for the facade, and even utilize those stones that tend to shear off, such as slate, sandstone or quartzite.

"It's primarily an open-joint (although the Morgan library is caulked) rain-screen system that's great for thermal efficiency," she says. "There's a savings on the stone, and because it goes up much quicker than hand-set, there are labor savings, as well."

Grieb says the choice of stone certainly drove the project toward the Fischer system.

"Being a quartzite with a cleft face, if we'd used a conventional system where you anchor from the edge, we would have had to use a much-thicker piece," he says. "And because of the way it's cleft, it would have been very difficult to get a 2" thickness."

Instead, the architects were able to specify a 1 ¼" thickness. And by hanging the stones on Fischer's aluminum-frame system, the architects were able to also enhance the energy efficiency on the new building.

"We used an air barrier system on the block wall, and the Fischer system was advantageous to that," says Grieb. "With a conventional system, on one stone you'd have four anchors penetrating your insulation and the air barrier. Here, we only have anchor points for each vertical element of the aluminum frame. Within one story, there are probably three or four anchor points, as opposed to four for every stone. That allowed us to keep the envelope much tighter."

#### MOVERS AND SHAKERS

As attractive as the ACT system appeared to the architects, making it actually happen fell to the contractor and its masonry sub; they were chosen strictly on the basis of bids.

MSU's Saleem explains that – as with the architects – the general contractor applicants were pre-qualified, but the successful firm, Hess Construction Co., of Gaithersburg, Md., was chosen strictly on the basis of being the low bidder.

"Their technical submittal pre-qualified them," say Saleem. "In this case, they were also the contractors for the student center, so they were already on site working."

Thomas Stewart, Hess' project superintendent, says the company is known for its work on educational facilities. This job was of particular interest, however.

“This project offered a wide range of finished,” says Stewart. “It’s an interesting job as far as its components, the concrete structure, the Fischer system, the stone itself. It’s a good-looking building.”

Hess’ selection of Baltimore Masonry as the masonry sub came for the same reason, he adds.

“While they came highly recommended to us and performed well, it was really a bid thing,” Stewart says.

Tom Ford, Baltimore Masonry’s project manager for the library says it’s probably not a job the company would bid even today. The company’s specialties are brick and block – but at the time the job was put out for bid, work was a little slower.

“I was also a little hesitant because of the façade system,” Ford says. “It looked simple enough, but there were a lot of pieces that went along with it: The initial cost is also a little expensive, but it saved us quite a bit in labor dollars and it went up pretty well.”

The cost to which Ford refers is the \$20,000 investment the company made to drill the anchor holes in the back of the stone \*although the machine may also be leased or rented, according to Probe’s Tett). Because the system is just now starting to be used in the U.S., Fischer and Probe also arranged to train the masons on the system.

“We actually trained them on it in three hours one morning when all the materials were there,” says Tett. “We have given Tom some paperwork to study before then, so they’d have an idea of how it was supposed to work. They guys were quick studies and we gave them some tips on how to be most-efficient.”

While that part of the project came together surprisingly well, the plan to utilize Mesa quartzite suffered an 11th-hour blow.

“It ended up causing quite a ruckus, because we bid it and got pricing on it, and then discovered it wasn’t available,” says Ford.

Sasaki Associates’ Brian Irwin explains it a little differently. He says at the last minute the supplier raised concerns about the schedule and the availability of the quantity required.

“We ended up having to scramble for a different stone,” says Irwin. “At the end of the day, we found another supplier (Walker Zanger) for a stone that’s almost identical to the Mesa quartzite. It’s still from the same region of China, but it has a little less mica and it’s a little less reflective.” “The basic stone is the same,” agrees MSU’s Saleem.

This Woodbrige quartzite was then extensively tested.

“It’s our understanding that the Woodbridge quartzite hasn’t been used very much in the United States, and we were worried about pull-out strength and its ability to withstand Baltimore’s freeze-thaw cycles,” says Irwin. “We wanted to know the that between the stone and the anchoring system the building wasn’t going to fall apart, but it passed with flying colors.

#### GREAT EFFECT

Once the Woodbridge quartzite finally began arriving from China, work on hanging the curtainwall began in February of this year.

Baltimore Masonry’s Ford explains that the curtainwall consists of a series of repeating modules, each 7’ 8” x 12’, and made of 19 stones. Each stone is 30” tall, but the widths range from 18” – 30”.

“Each module has the same sized stones in the same place,” says Ford, “It’s the same thing repeated over and over all around the building.”

“We created the module in a running bond, and the idea was to create something that appeared random but actually has an order to it,” says Design Collective’s Grieb. “When you look at it now, because there’s so much variation in size, it gives a great effect of being a random pattern.”

Ford compares the work of assembling and installing the curtainwall to hanging photos off a track system mounted on a wall. The company utilized a crew of eight masons at the site supervised by foreman Mike Snyder, who according to Ford, really pulled all the pieces of the project together for the company.

The stonework on the library wrapped up this fall; final completion of the library will be in January.

Although Ford contends the installation was fairly simple, both Hess’ Stewart and Grieb say there were some tricky parts to the work that the masonry sub handled well.

“When you’re talking about a wall that’s 500’ long and you’ve got several layers of floors, just trying to keep everything straight is a major challenge,” says Stewart. “Baltimore Masonry did well on maintaining a flat plane. We had some edge-of-slab issues where we were able to make corrections, but it all went together very well.”

“We have some radii on the building, and coming around the curves they did a very good job avoiding that segmented look,” says Grieb. “We had done some studies to see what the offset would be from panel to panel, and they definitely met how we had studied it. We were really impressed.”

Along with the exterior, the Woodbridge quartzite is carried into the interior of the building.

“One of the ideas was of bringing the inside out – blurring the interior and the exterior – and the stone comes into the main lobby of the building,” says Grieb. “It’s part of a three-story atrium that also serves as the main reading room, and it works well.”

He adds that the quartzite was installed on the interior using the same curtainwall process, but without the insulation and the air barrier.

Other stones used on the project include a Stone Source Sea green slate for the floors, and a Black Anthracite slate from Walter Zanger that makes up the exterior base of the structure.

“It’s what goes down to grade,” Grieb explains. “It’s recessed back from the main stone façade of the exterior, so it gives a nice transition out of the ground.”

The exterior slate was installed using a traditional kerf-type anchor. Baltimore Masonry also installed all the exterior stonework.

Despite the problems obtaining the quartzite, those involved in the project believe that when it comes to the new MSU library, the curtainwall helps it stand out and blend in at the same time.

Baltimore Masonry’s Ford says getting the stone probably took a couple years off his life, but the job has been a success.

“The Probe people were really helpful,” he says. “The help they provided was great and it went really well.”

“When we lost our first supplier and we were thinking we’d have to go to something more typical, the university really worked with us to find a solution,” says Sasaki’s Irwin. “Without exception, everyone is really glad we put in the effort to find an equivalent to that first stone. It really makes the building.”

“We wanted to make sure the building belongs to our campus and respects the context,” concludes MSU’s Saleem. “The stone relates to what has been done in the past, but because of its texture, its color and its variation, it’s a contemporary use of the stone that’s very forward-looking.

“We can say this is a Morgan building, and we’re happy with the way it’s gone.”

By K. Schipper